


Size: 0.64in x 0.37in x 0.34in (16.3mm x 9.3mm x 8.6mm)

## FEATURES

- Industrial SMD Package
- I/O Isolation 3000VDC
- Water-Washable Process Available
- Tape & Reel Package Available
- High Efficiency
- Qualifies for Lead-Free Reflow Solder Process According to IPC/JEDEC J-STD-020D.1
- Over Load and Short Circuit Protection
- UL/cUL 60950-1, IEC/EN 60950-1, UL/cUL 62368-1, and IEC/EN 62368-1 Pending Safety Approvals

## DESCRIPTION

The DCMSPU01H series of DC DC converters offers 1 watt of output power in a compact 0.64" x 0.37" x 0.34" industrial SMD package. This series consists of both single and dual output models and 3.3VDC, 5VDC, or 12VDC input options. Other options are available for this series such as a water-washable process and a tape and reel package. Each model in this series has I/O isolation of 3000VDC, high efficiency, and over load and short circuit protection. This series qualifies for lead-free reflow solder process according to IPC/JEDEC J-STD-020D.1 and has UL/cUL 60950-1, IEC/EN 60950-1, UL/cUL 62368-1, and IEC/EN 62368-1 safety approvals. Please call factory for order details.

### MODEL SELECTION TABLE

Single Output Models

| Model Number(7) | Input Voltage Range | Output Voltage | Output Current | | Input Current | | Output Power | Load Regulation (Max.) | Efficiency (@Max Load) |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min Load | Max Load | @No Load | @Max. Load | | | |
| DCMSPU01-033S033H | 3.3VDC (2.97~3.63) | 3.3VDC | 6mA | 300mA | 45mA | 390mA | 1W | 15% | 77% |
| DCMSPU01-033S05H | | 5VDC | 4mA | 200mA | | 384mA | | 12% | 79% |
| DCMSPU01-033S12H | | 12VDC | 1.68mA | 84mA | | 377mA | | 10% | 81% |
| DCMSPU01-033S15H | | 15VDC | 1.34mA | 67mA | | 381mA | | 9% | 80% |
| DCMSPU01-05S033H | 5VDC (4.5~5.5) | 3.3VDC | 6mA | 300mA | 30mA | 251mA | 1W | 12% | 79% |
| DCMSPU01-05S05H | | 5VDC | 4mA | 200mA | | 244mA | | 11% | 82% |
| DCMSPU01-05S12H | | 12VDC | 1.68mA | 84mA | | 240mA | | 7% | 84% |
| DCMSPU01-05S15H | | 15VDC | 1.34mA | 67mA | | 236mA | | 7% | 85% |
| DCMSPU01-12S033H | 12VDC (10.8~13.2) | 3.3VDC | 6mA | 300mA | 17mA | 106mA | 1W | 9% | 78% |
| DCMSPU01-12S05H | | 5VDC | 4mA | 200mA | | 103mA | | 8% | 81% |
| DCMSPU01-12S12H | | 12VDC | 1.68mA | 84mA | | 101mA | | 6% | 83% |
| DCMSPU01-12S15H | | 15VDC | 1.34mA | 67mA | | 101mA | | 6% | 83% |

### MODEL SELECTION TABLE

Single Output Models

| Model Number(7) | Input Voltage Range | Output Voltage | Output Current | | Input Current | | Output Power | Load Regulation (Max.) | Efficiency (@Max Load) |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min Load | Max Load | @No Load | @Max. Load | | | |
| DCMSPU01-033D05H | 3.3VDC (2.97~3.63) | ±5VDC | ±2mA | ±100mA | 45mA | 384mA | 1W | 12% | 79% |
| DCMSPU01-033D12H | | ±12VDC | ±0.84mA | ±42mA | | 377mA | | 9% | 81% |
| DCMSPU01-033D15H | | ±15VDC | ±0.66mA | ±33mA | | 375mA | | 9% | 80% |
| DCMSPU01-05D05H | 5VDC (4.5~5.5) | ±5VDC | ±2mA | ±100mA | 30mA | 244mA | 1W | 11% | 82% |
| DCMSPU01-05D12H | | ±12VDC | ±0.84mA | ±42mA | | 240mA | | 7% | 84% |
| DCMSPU01-05D15H | | ±15VDC | ±0.66mA | ±33mA | | 236mA | | 7% | 84% |
| DCMSPU01-12D05H | 12VDC (10.8~13.2) | ±5VDC | ±2mA | ±100mA | 17mA | 102mA | 1W | 7% | 82% |
| DCMSPU01-12D12H | | ±12VDC | ±0.84mA | ±42mA | | 101mA | | 6% | 83% |
| DCMSPU01-12D15H | | ±15VDC | ±0.66mA | ±33mA | | 99mA | | 6% | 83% |

## SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, Resistive Load and Rated Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | TEST CONDITIONS | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **INPUT SPECIFICATIONS** | | | | | | |
| Input Voltage Range | 3.3V Input Models | | 2.97 | 3.3 | 3.63 | VDC |
| | 5V Input Models | | 4.5 | 5 | 5.5 | |
| | 12V Input Models | | 10.8 | 12 | 13.2 | |
| Input Surge Voltage (1 sec. max) | 3.3V Input Models | | -0.7 | | 6 | VDC |
| | 5V Input Models | | -0.7 | | 9 | |
| | 12V Input Models | | -0.7 | | 18 | |
| Input Filter | | | Internal Capacitor Type | | | |
| **OUTPUT SPECIFICATIONS** | | | | | | |
| Output Voltage | | | See Table | | | |
| Voltage Accuracy | | | | | ±3.0 | %Vnom. |
| Line Regulation | For Vin Change of 1% | | | ±1.2 | ±1.5 | % |
| Load Regulation | Io=10% to 100% | | See Table | | | |
| Voltage Balance | Dual Output, Balanced Loads | | | ±0.1 | ±1.0 | % |
| Output Power | | | See Table | | | |
| Output Current | | | See Table | | | |
| Maximum Capacitive Load | Single Output Models | | | 220 | | µF |
| | Dual Output Models | | | 100 | | |
| Ripple & Noise (20MHz bandwidth) | 0-20MHz Bandwidth | | | 65 | 100 | mVp-p |
| Temperature Coefficient | | | | ±0.01 | ±0.02 | %/ºC |
| **PROTECTION** | | | | | | |
| Short Circuit Protection | | | Continuous, Automatic Recovery | | | |
| Over Load Protection | Normal Vin at 25ºC | | | 160 | | % |
| **ENVIRONMENTAL SPECIFICATIONS** | | | | | | |
| Operating Ambient Temperature | Natural Convection | | -40 | | +85 | ºC |
| Case Temperature | | | | | +95 | ºC |
| Storage Temperature | | | 50 | | +125 | ºC |
| Humidity | Non-Condensing | | | | 95 | %RH |
| Cooling | | | Natural Convection | | | |
| Lead-Free Reflow Solder Process | | | IPC/JEDEC J-STD-020D.1 | | | |
| MTBF (Calculated) | MIL-HDBK-217F@25ºC, Ground Benign | | 3,657,000 | | | Hours |
| Moisture Sensitivity Level (MSL) | IPC/JEDEC J-STD-020D.1 | | Level 2 | | | |
| **GENERAL SPECIFICATIONS** | | | | | | |
| Efficiency | | | See Table | | | |
| Switching Frequency | | | 50 | 80 | 110 | KHz |
| Isolation Voltage | 60 Seconds | | 3000 | | | VDC |
| Isolation Resistance | 500VDC | | 10 | | | GΩ |
| Isolation Capacitance | 100KHz, 1V | | | 20 | | pF |
| **PHYSICAL SPECIFICATIONS** | | | | | | |
| Weight | | | 0.067oz (1.9g) | | | |
| Dimensions (L x W x H) | | | 0.67in x 0.37in x 0.34in (16.3mm x 9.3mm x 8.6mm) | | | |
| Case Material | | | Non-Conductive Black Plastic (flammability to UL 94V-0 rated) | | | |
| Pin Material | | | Phosphor Bronze | | | |
| **SAFETY CHARACTERISTICS** | | | | | | |
| Safety Approvals (Pending) | UL/cUL 60950-1 recognition (UL certificate), IEC/EN 60950-1 (CB-report)<br>UL/cUL 62368-1 recognition (UL certificate), IEC/EN 62368-1 (CB-report) | | | | | |
| EMI[4] | Conduction | EN55022, FCC part 15 | Class A | | | |
| ESD | EN55024 | | | | | |
| | ESD | EN61000-4-2 Air±8kV, Contact±6kV | A | | | |
| | Radiated Immunity | EN61000-4-3 10V/m | A | | | |
| | Fast Transient[5] | EN61000-4-4 ±2kV | A | | | |
| | Surge[5] | EN61000-4-5 ±1kV | A | | | |
| | Conducted Immunity | EN61000-4-6 10Vrms | A | | | |
| | PFMF | EN61000-4-8 3A/m | A | | | |

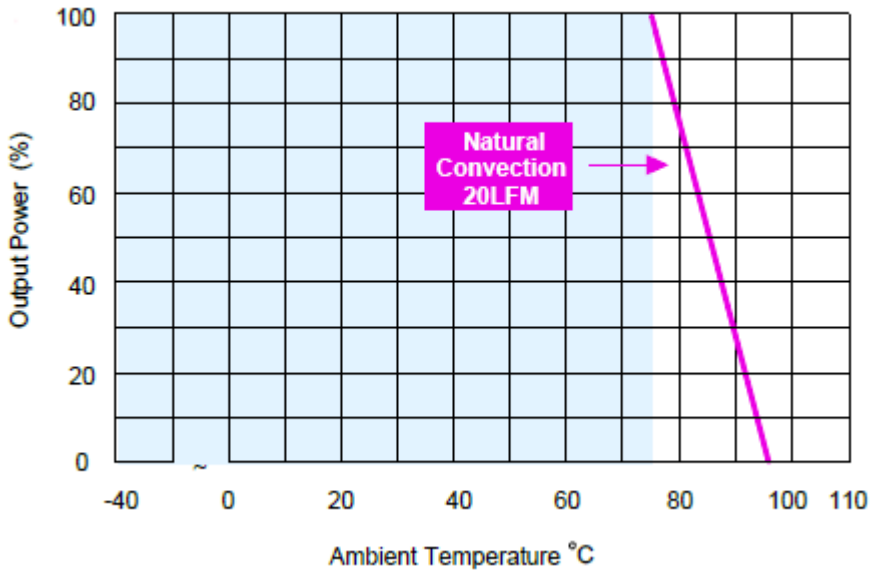
## NOTES

1. These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
2. We recommend protecting the converter by a fast blow fuse in the input supply line.
3. Other inputs and output voltages may be available, please contact factory.
4. To meet EN55022 Class A, an external filter is necessary. Please contact factory.
5. To meet EN61000-4-4 & EN61000-4-5 an external capacitor across the input pins is required. Suggested capacitor: 1800µF/50V KY Al-E Cap.
6. Natural convection is about 20LFM but is not equal to still air (0 LFM).]
7. For Water-Washable process, add "W" to end of model number.

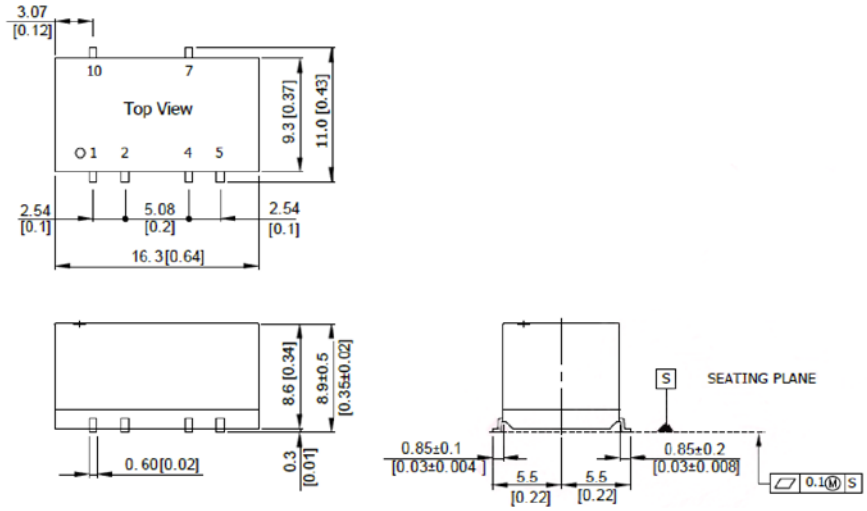
**Due to advances in technology, specifications subject to change without notice.*

## DERATING CURVES

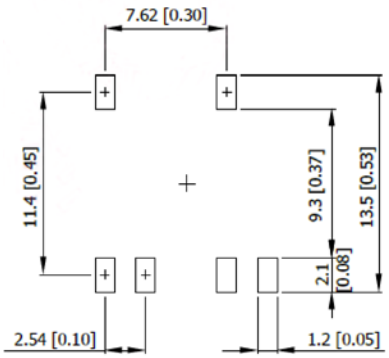
Power Derating Curve



## MECHANICAL DRAWINGS




Connecting Pin Patterns




All dimensions in mm (inches)
Tolerance: x.x±0.5 (x.xx±0.02)
x.xx±0.25 (x.xxx±0.01)
Pin ±0.05 (±0.002)

Pin Connections

| Pin | Single Output | Dual Output |
|---|---|---|
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | No Pin | No Pin |
| 4 | -Vout | Common |
| 5 | No Pin | -Vout |
| 6 | No Pin | No Pin |
| 7 | +Vout | +Vout |
| 8 | No Pin | No Pin |
| 9 | No Pin | No Pin |
| 10 | NC | NC |

NC: No Connection

## COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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